

WHAT IS CLAIMED IS:

1. A compound corresponding to the formula: $(A^{*+a})_b(Z^*J^*_j)^{-c}_d$, wherein:

A^* is a proton or a cation of from 1 to 80 atoms not counting hydrogen atoms, said A^*
5 having a charge $+a$;

Z^* is an anion group of from 1 to 50 atoms not counting hydrogen atoms, further containing two or more Lewis base sites, said Z^* being the conjugate base of an inorganic Bronsted acid or a carbonyl- or non-cyclic, imino-group containing organic Bronsted acid;

J^* independently each occurrence is a Lewis acid of from 1 to 80 atoms not counting
10 hydrogen atoms, coordinated to at least one Lewis base site of Z^* , and optionally two or more such J^* groups may be joined together in a moiety having multiple Lewis acidic functionality;

j is a number from 1 to 12; and

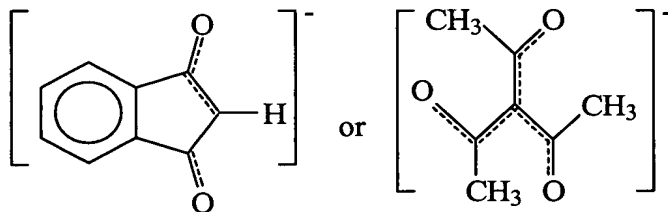
a , b , c , and d are integers from 1 to 3, with the proviso that $a \times b$ is equal to $c \times d$.

2. A compound according to claim 1 wherein Z^* is selected from the group consisting
15 of: NO_3^- , PO_4^{3-} , SO_4^{2-} , RSO_3^- , CO_3^{2-} , $[\text{RC}(\text{O})\text{O}]^-$, $[\text{RC}(\text{NR})\text{NR}]^-$, $[\text{R}'\text{C}(\text{O})\text{CR}'\text{C}(\text{O})\text{R}']^-$, $[(\text{R}'\text{C}(\text{O}))_3\text{C}]^-$, $[\text{RC}(\text{NR})\text{CRC}(\text{NR})\text{R}]^-$, and $[(\text{RC}(\text{NR}))_3\text{C}]^-$,

wherein each R is independently a hydrogen-, hydrocarbyl-, or halocarbyl- group; a hydrocarbyl group further substituted with one or more carbonyl-, halo-, hydroxy-, dialkylamino-, dialkylaluminumoxy-, trihydrocarbylsilyl-, trihydrocarbylsiloxy-, or hydrocarbyloxy- groups; or a
20 halocarbyl group further substituted with one or more carbonyl-, hydroxy-, dialkylamino-, dialkylaluminumoxy-, trihydrocarbylsilyl-, trihydrocarbylsiloxy-, or hydrocarbyloxy- groups; and

each R' is independently R or two R' groups may be joined together thereby forming a divalent group.

3. A compound according to claim 3 wherein Z^* is an acetylacetonate, cyclohexa-1,3-dionate, $[\text{RC}(\text{O})\text{O}]^-$ or NO_3^{2-} , wherein R is a C_{6-24} hydrocarbyl group, most preferably a C_{12-24} alkyl group, or an indane-1,3-dione anion or methyl triacetyl anion of the following structure:



4. A compound according to claim 1 wherein A^{*+a} is a proton or is selected from the group consisting of ammonium, sulfonium, phosphonium, oxonium, carbonium, silylium,
30 ferrocenium, Ag^+ , and Pb^{+2} cations.

5. A compound according to claim 1 wherein A^{++a} is a trimethylammonium-, triethylammonium-, tripropylammonium-, tri(n-butyl)ammonium-, methyldi(C₁₄₋₁₈ alkyl)ammonium-, dimethyl(C₁₄₋₁₈ alkyl)ammonium-, N,N-dimethylanilinium-, N,N-diethylanilinium-, N,N-dimethyl(2,4,6-trimethylanilinium)-, N,N-di(tetradecyl)anilinium-, N,N-di(tetradecyl)-2,4,6-trimethylanilinium)-, N,N-di(octadecyl)anilinium-, N,N-di(octadecyl)-2,4,6-trimethylanilinium)-, or methyldicyclohexylammonium- cation.

6. A compound according to claim 1 wherein J*⁺ is tris(pentafluorophenyl)borane or tris(pentafluorophenyl)alumane.

7. A compound according to claim 1 that is a bis(tris(pentafluorophenyl)borane)-coordinated derivative of a trihydrocarbylammonium stearate or a mono(tris(pentafluorophenyl)borane)-coordinated derivative of a trihydrocarbylammonium stearate.

8. A composition of matter comprising a compound according to any one of claims 1-7 and an organoaluminum compound.

9. A composition of matter comprising the admixture or reaction product, optionally in an inert diluent, of an inorganic Bronsted acid or a carbonyl- or non-cyclic, imino-group-containing organic Bronsted acid; from one to twelve moles per mole of Bronsted acid of a Lewis acid of from 1 to 80 atoms, not counting hydrogen atoms; optionally an amine or phosphine containing Lewis base of from 1 to 80 atoms, not counting hydrogen atoms; and further optionally an organoaluminum compound.

10. A catalyst composition for polymerization of addition polymerizable monomers comprising the combination or reaction product resulting from combining: 1) a Group 3-10 or Lanthanide metal complex, 2) a compound according to any one of claims 1-7, 3) optionally an organoaluminum compound, and further optionally 4) a solid, particulated support.

11. The catalyst composition of claim 10 wherein the organoaluminum compound is an alumoxane.

12. A catalyst composition for polymerization of addition polymerizable monomers comprising the combination or reaction product resulting from combining: 1) a Group 3-10 or Lanthanide metal complex, 2) a compound according to claim 8, and optionally 3) a solid, particulated support.